

**23 FEBRUARY 2000**



**Maintenance**

**END OF RUNWAY, LAUNCH, RECOVERY,  
ARM AND DE-ARM, AND HANDLING  
PROCEDURES**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFD 21-1, *Managing Aerospace Equipment Maintenance*. It establishes standard procedures, safety requirements, and responsibilities for the end-of-runway (EOR), launch and recovery, and arm/de-arm of F-15 and HH-60 aircraft on Kadena Air Base. It applies to 18th Wing and associate units at Kadena AB. This publication does not apply to the Air National Guard or US Air Force Reserve.

**1. References:** PACAFI 21-101, *Objective Wing Aircraft Maintenance*, TOs 1F-15A-33-1-2CL-17, *Non-nuclear Munitions Loading Procedures Checklist*, 1F-15A-6WC-2-2, *Aircraft Launch Inspection Procedures*, 1F-15A-6WC-2-4, *Aircraft Recovery Inspection*, 1F-15A-33-1-2, *Non-nuclear Munitions Loading Procedures*, and 1F-15C-2-05JG-10-1, *Aircraft Safety and Protective Devices*, 18 WGI 13-201, *Air Traffic Control/Airfield Management*, LCL 18 OG-017, *HH-60 Jammed Gun Safing and Clearing Procedures*, and 18 WGI 21-131, *Impoundment Procedures*.

**2. Responsibilities:** Squadron maintenance officers (MA) are responsible for ensuring strict compliance with procedures established by this instruction and applicable technical data. The procedures outlined in this instruction apply to aircraft launch and recovery as well as munitions arming and de-arming/safing operations. All arming and de-arming of munitions will be accomplished in designated areas as established by the 18th Operations Group Commander

**3. Locations for Operation:** Per explosives loaded parking plan (Tab D-8), and 18 WGI 13-201:

3.1. F-15 aircraft arming/de-arming and hung ordnance safing procedures will normally be performed on "warm up" pads 3 and 4 with aircraft oriented in headings of 050 and 230 respectively.

3.2. During sortie surge operations, F-15 aircraft involved in the surge may be de-armed in conjunction with cursory inspections on the hardstands along taxiway "H". However, all forward firing munitions must still be de-armed on warm-up pads 3 and 4.



3.3. F-15 jammed guns clearing/maintenance procedures will be performed on “warm up” pads 3 and 4 (with aircraft oriented in headings of 050 and 230 respectively) or hard stand 125.

3.4. HH-60 aircraft guns will be armed/cleared away from the airfield in a safe location as determined by the aircrew.

3.5. Designated jammed/hot gun areas for the HH-60 helicopter are “warm up” pads 1 and 2 with aircraft/weapon oriented in headings of 230 and 070 respectively. Hard stand 3555, located adjacent to warm-up pad 1, will be used as an alternate jammed/hot gun clearing/maintenance area.

**4. Personnel Limits:** An F-15 arm/restart team will consist of three individuals; one team chief, one launch/recovery-qualified inspector, and one launch/recovery-qualified weapons inspector. An F-15 end of runway (EOR) de-arm crew will consist of one launch/recovery-qualified team chief and one qualified weapons inspector.

4.1. During surges, the surging fighter squadron (FS) will provide additional EOR teams (as required) to meet increased operational demands.

**5. Explosive Limits:** To be determined by mission requirements.

## **6. Training and Equipment Requirements:**

### 6.1. Training:

6.1.1. Only task-qualified personnel are authorized to perform “immediately prior to launch” or “safing” procedures as contained in the applicable technical orders.

6.1.2. FS will ensure all personnel tasked to perform EOR duties receive EOR orientation training. Weapons Standardization (WS) will provide orientation training to all personnel required to perform EOR duties. Individuals will be familiarized on operating instructions and procedures, primary and alternate locations, and their primary duties while at EOR. WS will document all personnel attending orientation training in CAMS. Immediate supervisors are responsible for documenting career field education and training plan (CFETP) or an AF Form 797, **Job Qualification Standard Continuation**, stating the individual is qualified to perform EOR duties.

6.1.2.1. All personnel performing EOR launch/recovery inspections or munitions arm/de-arm duties are required to attend the following training courses prior to their assignment to EOR:

COURSE CODE	TITLE	
2000/2001	Maintenance Block/Refresher Training or:	
002	Fire Extinguisher Training	All personnel
003	FOD (Foreign Object Damage)	All personnel
398 or 399	F-15 Egress Expanded or Familiarization	All personnel



**COURSE CODE    TITLE**

413	Weapons Academics	All 2W1X1
423	F-15 Maintenance Explosive-Loaded Aircraft	All personnel except 2W1X1
431	F-15 IPL Procedures/EOR Orientation	All personnel except 2W1X1
602	F-15 Initial orientation	18 MXS Armament personnel

6.1.2.2. All non-2W1X1 personnel performing munitions arm/de-arm duties will be qualified on AIM-120, AIM-9, AIM-7, and ALE-45 arm/de-arm procedures.

6.1.2.3. In addition, all 2W1X1 personnel will:

6.1.2.3.1. Be certified/qualified on AIM-120, AIM-9, AIM-7, ALE-45, and M61A1 gun arm/de-arm procedures.

6.1.2.3.2. Have attended Eagle Keeper 3.

6.1.2.3.3. Be task qualified to marshal aircraft.

6.1.2.3.4. Successfully complete the aircraft marshaling test.

6.2. Equipment:

6.2.1. Each FS SGF will insure each individual has the following equipment as a minimum:

6.2.2. Double hearing protection.

6.2.3. Flashlight.

6.2.4. Reflective vest/belt for nighttime operations.

6.3. General use equipment at each EOR location will include as a minimum:

6.3.1. One reflective vest for each arm and de-arm team chief.

6.3.2. Set of marshalling wands.

6.3.3. Two 150-pound halon fire extinguishers.

6.3.4. Four sets of aircraft chocks.

6.3.5. Two headsets/communication cords.

6.3.6. One complete set of aircraft safing pins to include munitions pins and covers.

6.3.7. Two stepladders.

6.3.8. Two fuel catch tubes, two rubber fuel recovery buckets and IPE gear (as required).

6.3.9. Applicable EOR TOs and checklists: 1F-15A-6WC-2-3, 1F-15A-6WC-2-4, and 1F-15A-33-1-2CL-17 or 18.



6.3.10. EOR composite tool kits (as required) controlled IAW PACAFI 21-101, paragraphs 21.7 and 21.8.

## **7. Aircraft ARMING/DE-ARMING Sequence of Operations and Safety Precautions:**

7.1. Daily-use training munition flying procedures: Remove aircraft safety pins in accordance with the launch procedures contained in TO 1F-15A-6WC-2-2 and install them per recovery procedures in TO 1F-15A-6WC-2-4 in the FS parking area. **NOTE:** Chaff, flare, and 20MM ammunition are live ordinance and must be armed/de-armed in the designated arm/de-arm areas.

7.2. Aircraft de-arming procedures:

7.2.1. The de-arm crew will inspect the aircraft for hot brakes condition in accordance with TO 1F-15A-6WC-2-4.

7.2.2. Qualified weapons personnel, or individuals qualified to perform aircraft arming and safing procedures, will safe munitions-loaded stations (gun and chaff/flare station) per the safing procedures contained in TO 1F-15A-33-1-2 checklist.

7.2.3. Complete recovery procedures prescribed in T.O. 1F-15A-6WC-2-4 will be accomplished in the FS parking area.

7.2.4. Exercise and Contingency Operation Procedures: Ground safety pins installed in landing gear and arresting hook will be pulled in the FS parking area. All ground safety pins installed in live and inert loaded missile stations, carted stations, gun, and chaff/flare will be removed/installed at the EOR.

7.2.4.1. Aircraft de-arming procedures:

7.2.4.2. The de-arm crew will inspect the aircraft for hot brakes condition in accordance with TO 1F-15A-6WC-2-4.

7.2.4.3. Qualified weapons personnel, or individuals qualified to perform aircraft arming and safing procedures, will install safety pins in all munitions-loaded stations (inert and live) per safing procedures contained in TO 1F-15A-33-1-2 checklist.

7.2.4.4. Complete recovery procedures prescribed in TO 1F-15A-6WC-2-4 will be accomplished in the FS parking area. **NOTE:** All aircraft will be re-inspected upon return to the FS parking area. If aircraft are found to be unsafe, aircraft station de-arming/safing will be performed IAW applicable technical data by qualified personnel in the FS parking area. Stations loaded with live forward firing munitions must be de-armed/safed first to preclude standing unnecessarily in front of or under armed munitions.

7.3. FS SGF will appoint an EOR qualified supervisor (minimum 7-level) who will oversee operations at both ends of the runway and will:

7.3.1. Be in-place in sufficient time prior to first scheduled launch/land time.

7.3.2. Coordinate additional EOR personnel requirements during surges.

7.3.3. Ensure all necessary equipment is available, serviceable, and properly signed-in/out each shift.

7.3.4. Conduct a foreign object inspection of EOR areas prior to arrival of the first aircraft and on a continuing basis throughout the shift.



7.3.5. Conduct a pre-task safety briefing from applicable technical data and this WGI at the beginning of each shift and when personnel changes are made to ensure all personnel are familiar with emergency procedures used during ground emergencies.

7.3.6. Use a portable “hand held” radio to maintain communication with maintenance operations center (MOC) and FS SGF personnel.

7.4. EOR Marshaller will:

7.4.1. Ensure aircraft are parked in designated spots with one main gear chocked before EOR launch/recovery inspection and munitions arming/de-arming is performed. **WARNING:** Personnel will not be allowed under aircraft until EOR marshaller has established direct communication and positive control of the aircraft and signaled pilot to “hold” position.

7.4.2. Ensure personnel do not approach aircraft until directed.

7.4.3. Establish interphone communication with pilot or use visual communication (if interphone failure occurs).

7.4.4. Ensure aircrew member(s) places both hands in full view.

7.4.5. Ensure the area in front of the aircraft with forward-firing munitions is clear prior to beginning arming operations.

7.4.6. Closely monitor all arming/de-arming operations to ensure all armament safety pins, devices, and protective covers are removed/installed IAW this WGI and applicable technical data. Ensure safety pins/devices are secured and accounted for as they are removed from the aircraft. **NOTE:** Any required fast fix “red-ball” maintenance will be conducted IAW OI 21-135, *Aircraft Red Ball/Blue Ball Procedures*.

7.4.7. Turn aircraft over to responding “red-ball” personnel. After “red-ball” maintenance, aircraft will be turned back over to EOR crew for launch.

7.4.8. Ensure completion of arming/dearming inspection, clear all personnel from under aircraft and signal to pilot “aircraft clear to taxi.”

**8. Exercise and Wartime Requirements:**

8.1. FS non-deployed personnel will provide EOR operations at home station.

8.1.1. Deploying FS personnel are responsible for EOR setup/coverage at base X or other deployed locations. Additionally, 18MX/LGMR personnel will augment EOR as mission permits.

8.1.2. All training and equipment requirements noted in para 6. of this WGI will be adhered to at the deployed EOR.

8.1.3. All sequence of operations and safety precautions noted in para 7.2. will be adhered to at deployed EOR.

**9. Emergency Procedures:**

9.1. Personnel will be thoroughly familiar with emergency procedures and proper use of fire extinguishers.



- 9.2. In the event of injury during launch or recovery operations, immediately notify the MOC. Administer first aid to personnel until assistance arrives.
- 9.3. In the event of a fire, personnel will follow TO 1F-15A-33-1-2 emergency procedures.
- 9.3.1. Notify the pilot of the situation and instruct the pilot to initiate emergency procedures.
  - 9.3.2. Evacuate non-essential personnel and ensure a head count is conducted.
  - 9.3.3. Notify MOC, who will in turn notify the fire department.
  - 9.3.4. Direct other aircraft and personnel to a safe location.
  - 9.3.5. Retrieve or direct use of fire extinguisher, if needed.
  - 9.3.6. In the event of flare ejecting from the aircraft, marshaller will immediately direct pilot to pull forward and away from burning flare.
- 9.4. If a dangerous situation is encountered with an explosive item or an explosive item is suspected of being unsafe, marshaller will notify pilot of the situation, evacuate personnel to safe location, and notify MOC to contact explosive ordnance disposal (EOD) for assistance.
- 9.5. If an F-15 aircraft has a known or suspected gun malfunction/hung ordinance, marshaller will:
- 9.5.1. Notify MOC to contact EOD, 18 WG Safety, 18 OG Quality Assurance (QA), and 18 MXS Armament Flight.
  - 9.5.2. EOD, 18 WG Safety, 18 OG QA, 18 MXS Armament Flight, and FS weapons personnel will meet aircraft at EOR to determine the extent of the gun malfunction/jam. **NOTE:** F-15 aircraft with jammed guns/hung ordinance will be directed to the designated jammed gun/hung ordinance areas located on warm-up pads 3 and 4. These areas are clearly marked on the parking apron by red circles and arrows indicating the least hazardous direction. Notify MOC, install safety pins, shut aircraft engines down, and evacuate non-essential personnel as required. Impound the aircraft IAW 18 WGI 21-131 and turn aircraft over to EOD and qualified personnel for clearing and proper gun maintenance/munitions downloading IAW applicable loading/unloading TO.
  - 9.5.3. If gun system/munitions can be properly safed IAW applicable technical data and this WGI, safe aircraft and have pilot taxi aircraft back to FS' aircraft parking location. **NOTE:** HH-60 Aircraft returning with jammed/hot guns will inform tower and request landing on 5L/23R for taxi to warm-up pad 1. The jammed/hot weapon will be aimed IAW headings listed in para 3.4. of this instruction. The weapon will be cleared or removed by 33 RQS weapons personnel before the aircraft returns to its designated parking area. Impound the weapon(s) IAW 18 WGI 21-131.

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